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LIVING MEDUSÆ

BY ERNEST INGERSOLL.

Illustrated from drawings from living examples.

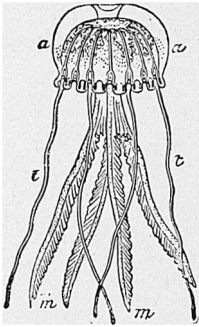


FIG. 1. A TYPICAL MEDUSA

Pelagia cyanella: *a*, disk, umbrella or swimming-bell; *m, m*, digestive and generative appendages (fringes); *t, t*, tentacles.

object frightful enough to ward off even the superhuman malignancy of the Evil Eye itself. But really there is no more harm in the one than in the other, the jellyfish being, in fact, hardly more substantial than the myth; and a curious incident may further be noted in respect to this name, since the class to which these delicate animals belong is called *Acalephs*, which means *stingers*, because its principal members are furnished with powerful urticating organs.

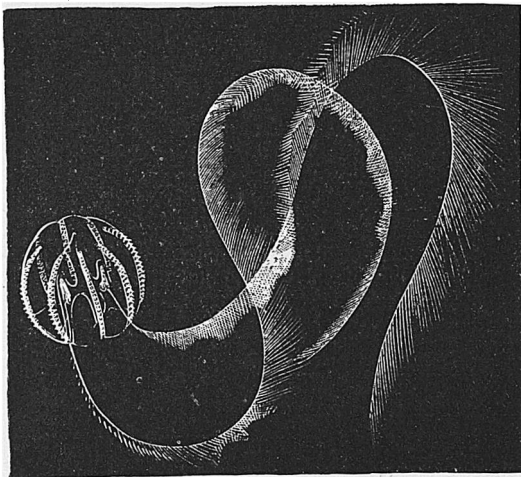


FIG. 3. PLEUROBRACHIA RHODOACTYLA

THOSE poetic souls who are ever seeking to discover the spiritual in nature, and contrasting it joyously with the sturdiness and substantiality that is usually too apparent to be idealized, ought to turn their gaze upon the medusæ. Even the term jellyfish, more commonly applied to these sea-swimmers (other names are inelegant), implies a solidity few approach and I shall therefore call them, as the zoologists do, medusæ.

How apt this name is, at any rate for the larger and commoner sorts, may be seen by a glance at figure 12, whose writhing stinging tentacles suggest nothing so obviously as the snaky locks of the fabled gorgon that Perseus killed, whose grimacing visage was mounted upon the ægis of Athena and copied by all good Greeks, even to this day (though they may not realize it), as an

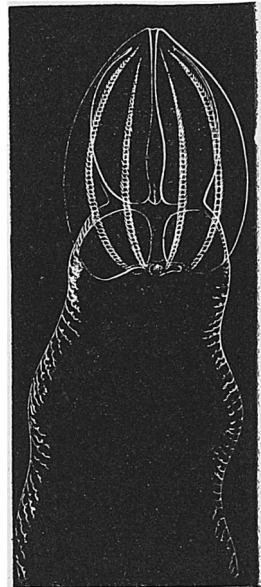


FIG. 2. A CTENOPHORE
End-view of *Leseueria*
polyptera.

The medusæ are among the lowliest of living

things, — that is, they have an extremely simple organization, being closely allied to the coral-polyps and sea-anemones on the one hand, and to the trepangs and star-fishes on the other. They consist of hardly more than films and threads of a gelatinous substance, almost unorganized and more or less transparent, which is permeated by cavities and canals through which the sea-water circulates, while their surfaces continu-

ously extract microscopic nutriment from it. Some kinds, however, require a stronger diet and are carnivorous, seizing and drawing into their interiors various small animals whose juices are absorbed and hard parts rejected. A curious example of this is found in the case of the species outlined in figure 8, and common

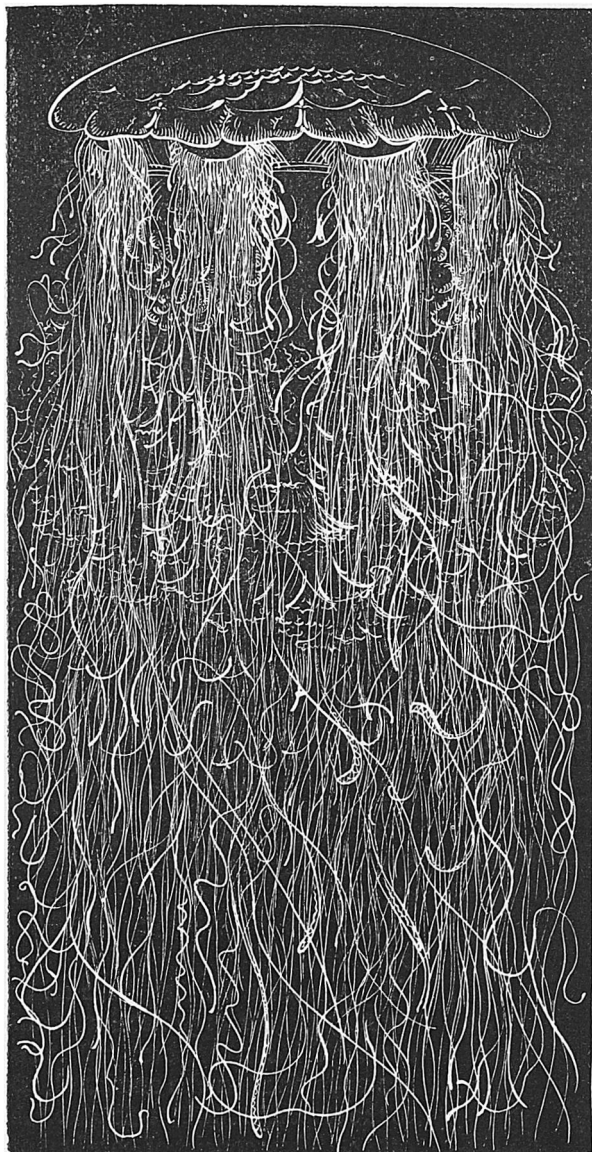


FIG. 4. *CYANEA ARCTICA*

on our North Atlantic coast, as are all those here illustrated. This medusæ is always accompanied by a small shad-like fish which enwraps itself in the pendant fringes, sometimes twenty or more clinging together to this shelter. These fringes, seen also in figures 1, 4 and 11, depend from the mouth of the stomach, and are in reality prolongations of it, since their inner surfaces assimilate the food held in their muscular grasp; and the jellyfish, accepting the goods the gods place in its very mouth, swallows a fish every few hours,—a fact which does not seem to alarm its fellows in the least. Meanwhile, until their turn comes, the minnows are protected from other enemies, and themselves find food among the folds of the fringes, or even eat these wrinkled membranes themselves.

These lambent gems of the sea, softly radiant with the shifting play of their own phosphorescent light—mantling their cold crystalline bells and lace-like appendages with blushes of submarine lightning—swarm in incredible numbers and diversity under every latitude, but especially within the tropics; and it is to them that the marvelous sea-fires noted by voyagers are principally due.

Some are oceanic, and known only where they burst into tiny rockets of blue flame under the prows of far-sailing ships; but the main body of the medusa tribe frequent the coast, thronging especially in protected lagoons, seeking water that is still and warm. A familiar one among the Florida reefs is the “thimble-fish” of the spongers; of which long bending lines may be seen drifting with the tide, like

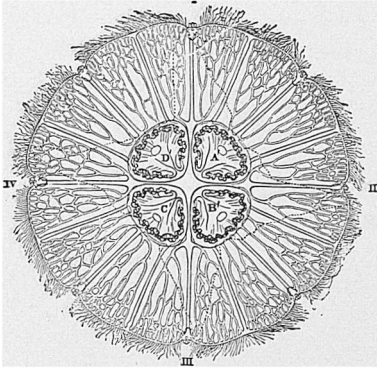


FIG. 5. AURELIA FLAVIDULA

View from above, showing the radial structure, the ovaries (A, B, C, D) and the ambulacral zones, I, II, III, IV, each with its system of circulatory canals.

chains of iridescent bubbles—necklaces of pearls on ocean's breast.

In more northern and colder waters they are somewhat less common, and many are altogether nocturnal in their habits. On the other hand, the sunshine attracts several of the larger kinds to the surface by day, where they lie, sometimes in vast shoals, basking in the warm light and rising and falling with the quiet billows, but sinking to imperturbable depths upon the approach

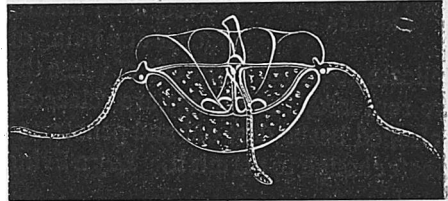


FIG. 6. CAMPANELLA PACHYDERMA

of a storm, for their delicate structure is unable to endure rough tossing by the waves.

Two conspicuous species, which sailors call "sunfish," on account of this basking habit, are numerous in the Atlantic, and reach a large size. One is the yellowish *Aurelia* (fig. 5), which has only short tentacles around its margin, and often strews the northern beaches after a gale. It averages the size of a dinner-plate, but is far outranked in size by the equally common and far more splendid reddish-brown *Cyanea arctica* (fig. 4), which sometimes measures seven and a half feet across the disk, and has tentacles 120 feet in length.

These huge jellyfishes go in great schools, and are preyed upon by several of the larger denizens of the ocean, as the great squids, whales, turtles and some big fishes; but they are well able to seize and devour certain small soft-bodied animals, and to defend themselves against many others.



FIG. 7. HALICLYSTUS AURICULA:
NATURAL SIZE

Their vivid phosphorescence is no doubt a means of defence, warning away many creatures that accidentally or designedly might do them an injury; but their active

weapons, for both offence and defence, are found in the curious organs to which they owe another name,—“sea-nettles.” Thickly scattered over

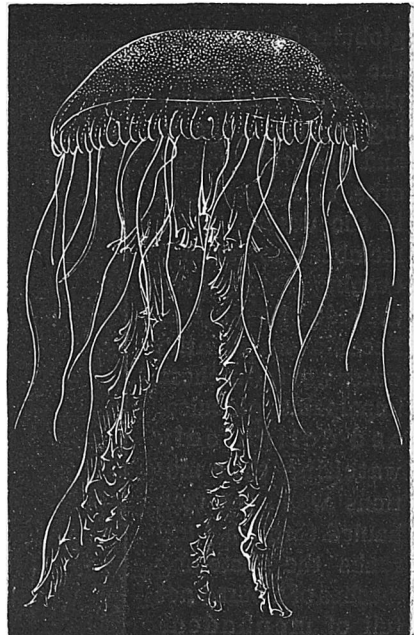
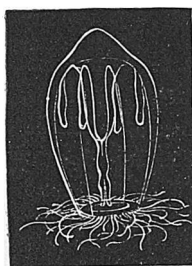
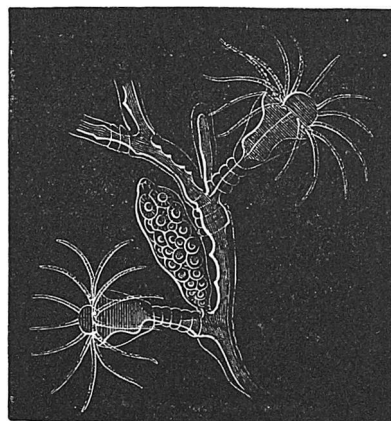
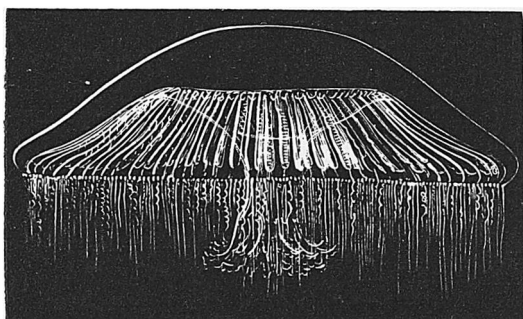


FIG. 8. DACTYLOMETRA QUINQUECIRRA

FIG. 9. *TRACHYNEMA DIGITALE*

the surface of every tentacle are pits or pockets of microscopic minuteness closed by a filmy pellicle, within each of which there is coiled, like a spiral spring, a thread terminating in a barbed needle, which is further armed with an acrid fluid. The instant the tentacle, floating about, touches any living object, the

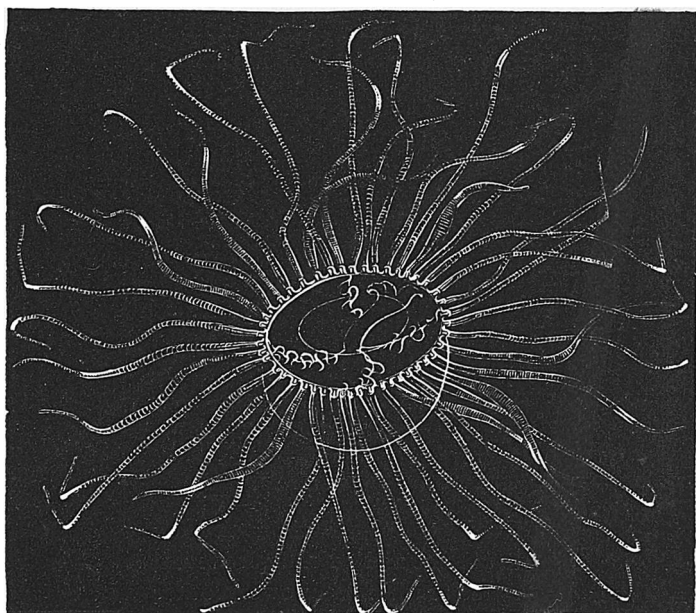
delicate covers of hundreds of these thread-cells are ruptured, the springs are released, and the poisoned barbs dart out and penetrate whatever is soft enough to permit it. Lay a living tentacle

FIG. 10. *EUCOPE POLYGENA*FIG. 11. *ZYGODACTYLA GRÆNLANDICA*

globular or ovoid, as the exquisite ctenophores, or comb-bearing medusæ (figs. 2 and 3) — transparent orbs, scarcely visible in the water. I remember one summer evening leaning over the side of a boat in Peconic bay, when the water was full of these impalpable globules, and delightedly watching their motions while the men hauled through their ranks the glistening meshes of a purse-net full of menhaden. How the captives

of one of the larger jellyfishes across the back of your hand and it will leave a fiery red line. Should a naked bather become entangled in the thousand filmy lassos of a great *Cyanea*, he might be rendered so powerless by the impeding, pain, and numbing effect of the poisonous injection (sufficient to paralyze small prey), as to drown before he could get free.

Not all jellyfishes are umbrella-shaped or thimble-shaped. Some are

FIG. 12. *GONIONEMUS VERTENS*

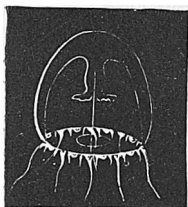
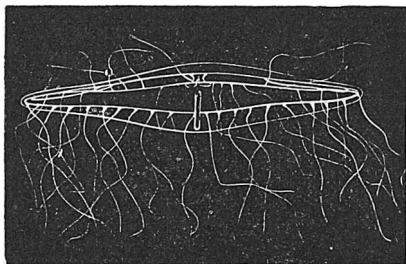


FIG. 13. A "GOSSAMER FRAME"

gleamed! Their iridescent scales seemed illuminated from within, so brilliantly was the sunshine reflected from them as they struggled together under the clear green water. Shifting waves of color flashed and paled—gray as the fishes turned their backs, sweeping brightly back as they exposed their nacreous sides, soft, undefined, mutable; while, to show their tints the better, myriads of minute medusæ carried hither and thither little phosphorescent lanterns in gossamer frames and transparent globes, shining brightly even in the daylight. These were ctenophores,—egg-shaped, transparent little creatures,

FIG. 14. *OCEANIA LANGUIDA*

This shows the great power of contraction possessed by some species.



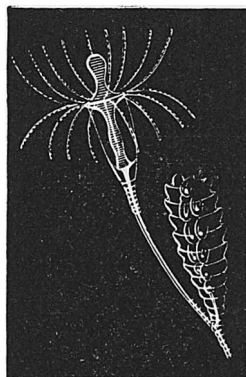
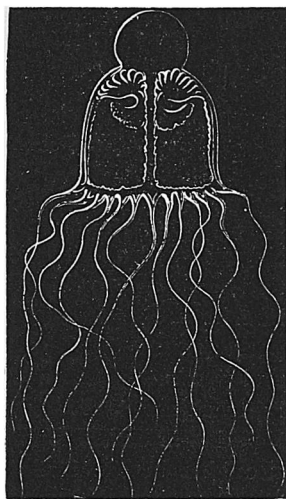
FIG. 15. A COMPOUND HYDROID

with eight lines of tiny paddles running up their sides; and it was along these lines that the mysterious light flickered so exquisitely. In the larger, umbrella-shaped jellyfishes, it seems to be the rim of the umbrella, or else the radial canals, that bear the light-giving organs; and it is beautiful to watch them pulsing through the water, the disk paling and glowing with each contraction and expansion of the pearly creatures, and the tentacles waving like a moon-lit plume.

While some jellyfishes trail radiantly behind them a cloud of tentacles and sweep through the dark water at night like submarine comets, others have no tentacles, or only very few; or in place of them flexible feathery cirri of filmy beauty. Such are the plumularians, one of which is depicted in figure 3. Then, again, others are fixed, rooted upon kelp or some other support, and growing like flowers,—a whole colony on a single stalk, (figs. 7, 10, 15). Others seem never to move about. Such is a species, abundant on the coral-reefs of Florida, which



FIG. 17. HYDROIDS

FIG. 16. *CLYTIA BICOPHORA*FIG. 18. *TURRIS VESICARIA*

lies quiet on the living coral day and night. Another is the curious one depicted in figure 12, which is commonly found clinging to the weeds in the kelp-beds along our northern shores. Some jelly-fishes, as those shown in figures 19 and 21, are really a colony of animals, each group of parts having its own organs and separate existence, although the circulatory system of the group is general, so that the nourishing liquids are carried im-

partially to all members of the colony. Each part, however, has its own function, one set of members buoying up and moving about its fellows, while a part of them catch and digest the food for the whole, and another part is entirely reproductive in its office,

and so on. This is an ideal socialism; but it is successful because no part can secede and there is no reward for any member who feels disposed to out-do his fellows.

The movements of the medusæ express the perfection of beauty in motion. Nothing in nature exceeds the elegance and sinuous grace of their swimming. Unsubstantial shapes, of,

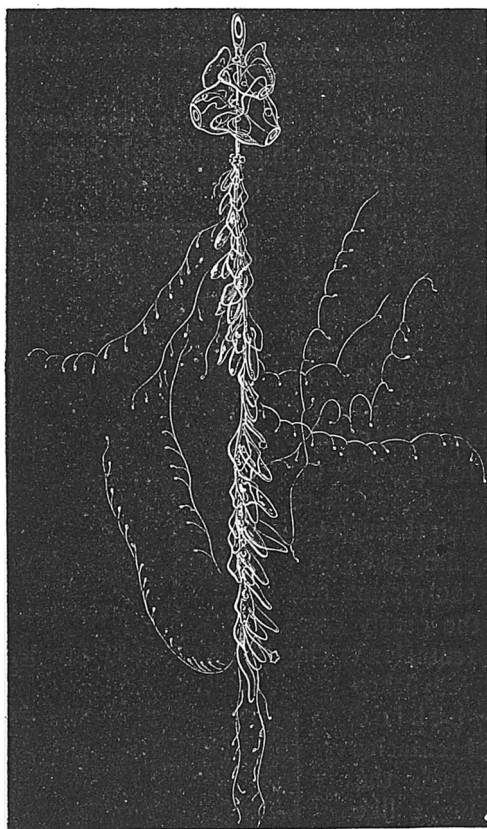


FIG. 19. *NANOMIA CARA*: A PHYSOPHORE

rather than in, the water, palely drawn against the darkness in ghostly outlines of their own phosphorescence, their tentacles mere ripples of light, they swell elegantly onward without any visible effort by the alternate contraction and dilation of their wavering disks, reflecting here a prismatic sunbeam, there altogether lost in a shadow, to appear again in a moment and so throb softly, silently, tracklessly through the liquid,—mere passing thoughts in the brain of the Great Deep.

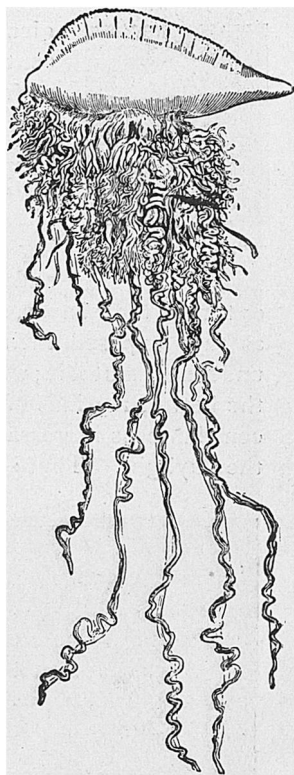


FIG. 21. THE PORTUGUESE MAN-O'-WAR

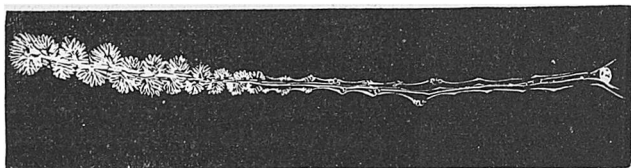
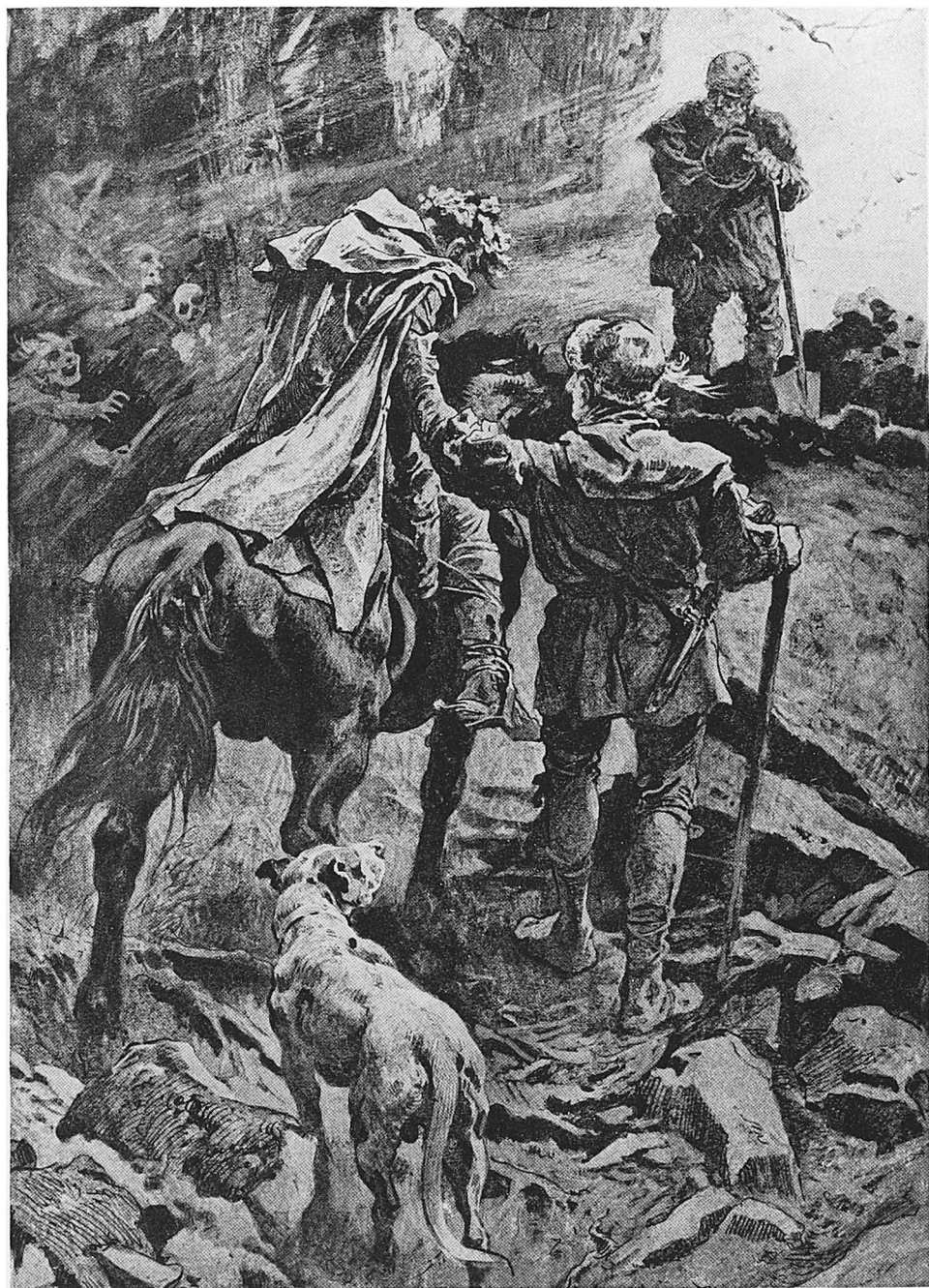


FIG. 20. A TENTACLE OF A MEDUSA (*SYNDICTYON*), ENLARGED



Drawn by Woldemar Friederich

THE WILD HUNTSMAN. X.—BURIAL OF COUNT HACKELBEREND

According to his wishes, Gerhard and Bruno take the dead Count at night to his forest-grave, riding on his favorite charger. Ghosts appear and taunt the dead noble, because he preferred a hunting-ground to heaven after death.